UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

SUBJECT: Five-Year Review for the Micro Storage Corporation/Intel Magnetics Superfund Site

FROM: John Kemmerer, Acting Chief
Site Cleanup Branch

TO: Keith Takata, Director
Superfund Division

I. INTRODUCTION

Attached, please find a copy of the Micro Storage/Intel Magnetics Five Year Review prepared by the California Regional Water Quality Control Board. EPA has reviewed their Five Year Review and adopts their recommendations as written. The Regional Board's Five Year Review is summarized below.

Because contaminant levels will allow for unlimited use and unrestricted exposure upon achieving ROD goals, this Five-Year Review is not required by the statute (section 121(c) of CERCLA, as amended) or Section 300.430(f)(4)(ii)) of the NCP, which implements CERCLA. However, because clean-up will take five or more years to attain, this Five-Year Review must be conducted as a matter of Agency Policy (OSWER Directive 9355.7-02, "Structure and Components of Five-Year Reviews", 5/31/91, p.2). This review (Type I) is applicable to a site at which construction is complete (OSWER Directive 9355.7-02A, "Supplemental Five-Year Review Guidance", 7/26/94, p.4-5).

II. FIVE YEAR REVIEW SUMMARY

The Micro Storage Corporation/Intel Magnetics site was listed on the NPL in June 1986. The source was found to be an underground solvent tank formerly on the Intel Magnetics (IM) site and a chemical storage area on the Micro Storage Corporation (MSC) site. MSC declared bankruptcy and was dissolved as a corporation. The property owner, Kim Camp III began interim clean-up measures that year until 1991. These interim measures included installing a groundwater extraction and treatment system, and excavating and removing the tanks and 35 cubic yards of soil. The main components of concern were TCE, TCA, DCE and freon, and the contaminants were confined to the 'A-zone' aquifer. The dischargers submitted a Remedial Investigation/Feasibility Study for the combined site in January 1991. The Regional Board adopted Site Cleanup Requirements (SCRs), Order No. 91-119 for the site in July 1991. In accordance with the Site Cleanup Requirements, the final cleanup plan includes a deed restriction

prohibiting the use of shallow groundwater, groundwater monitoring, groundwater pumping from the 'A-zone' aquifer, and treatment of extracted groundwater with activated carbon and discharge of the treated groundwater to the storm drain under an NPDES permit.

Since 1991, 15.6 million gallons of groundwater has been extracted and treated at this site to remove 12.5 pounds of TCE. The amount of VOCs removed per volume of groundwater extracted has been steadily declining. However, the mass of removal rate of TCE by the extraction and treatment system remained relatively constant. This has been achieved by increasing the amount of water being extracted. The dischargers feel their site is close to reaching asymptotic levels and requested the Regional Board to apply its "Non-Attainment Area" policy to the site. In April, 1995 the Regional Board staff approved the shutdown of the extraction system. The Regional Board will evaluate each such request outside of the Five Year Review.

Since the SCRs were adopted, Board staff are aware of only one ARAR change for toluene. From 100 µg/L to 150 µg/L CA MCL, EPA proposed MCL of 40 µg/L to adopted MCL of 720 µg/L.

III. CONCLUSION

Although the pump and treat component of the ROD is not currently operating, given ongoing monitoring, the remaining provisions in the ROD remain effective at protecting human health and the environment.

Future Policy Five Year Reviews shall be conducted every five years from the approval of the previous Review, until ROD cleanup levels are achieved, assuming they will remain at levels that allow for unlimited use and unrestricted exposure (OSWER Directive 9355.7-02, Attachment I, p.5). Therefore, the next Five Year Review shall be written five years from the signature date of this Review.

Approved by: Keith Takata Date: 10-31-96

Keith Takata, Director
Superfund Division
Region IX

Attachment: Review comments on Micro Storage Corporation/Intel Magnetics Facility, 2986 Oakmead Village Ct in Santa Clara, Five-Year Status Report and Effectiveness Evaluation

cc: Micro Storage Corporation/Intel Magnetics Site File

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Toxics Cleanup Division

Five-Year Review (Type I)

Intel Magnetics/Micro Storage
2986 Oakmead Village Drive
Santa Clara, California

I. INTRODUCTION

Authority Statement. Purpose. The California Regional Water Quality Control Board, San Francisco Bay Region, conducted this review pursuant to the Multi-Site Cooperative Agreement (MSCA) between the U.S. EPA Region IX and the Regional Board, and the U.S. EPA Supplemental Five-Year Review Guidance (OSWER Directive 9355.7-02A) of July 26, 1994. It is a policy review. The purpose of a five-year review is to ensure that a remedial action remains protective of public health and the environment and is functioning as designed. This document will become a part of the Site File (No. 2189.8305). This review (Type I) is applicable to a site at which response is ongoing.

Site Characteristics:

Location. The Micro Storage Corporation/Intel Magnetics (MSC/IM) site is located on Oakmead Village Drive about a block from where it intersects Central Expressway in the City of Santa Clara. The site consists of two separate facilities, the former Micro Storage Corporation and the former Intel Magnetics, which have a commingled groundwater pollutant plume. The predominant groundwater flow direction is towards the northeast. The underlying sediments are a heterogeneous alluvial material consisting of sands and gravels interbedded with silts and clays. The regional groundwater basin in this area can be divided into two general zones, the upper zone and the lower zone. The lower zone consists of an extensive deep regional aquifer found below about 200 to 250 feet. This deep regional aquifer supplies 50 percent of the municipal water supply to local communities. The upper zone consists of a complex, heterogeneous system of water bearing zones separated by aquitards which may be leaky or very tight. The lower zone is separated from the upper zone by an extensive regional aquitard which ranges from 20 feet to over 100 feet in thickness. Groundwater pollution at the MSC/IM site is confined to the shallowest zone of the upper aquifer zone.

Two shallow aquifer zones have been investigated at the MSC/IM site. These shallow aquifer zones are subdivisions of the upper aquifer zone described above. The shallowest, identified as the A aquifer zone (A zone), has its upper boundary at about 10 feet below ground surface (BGS), and lower boundary about 20 feet BGS. The next encountered water bearing zone is identified as the B

aquifer zone (B zone). The B zone lies between about 30 and 40 feet BGS. The two zones are separated by a 2 to 10 foot thick aquitard composed of clay to silty sand. There could be some hydraulic connection between the two zones due to the discontinuous nature of the sediment types. Contamination is confined to the A zone. Groundwater in the A and B zones flows toward the northeast.

Source of Contamination. There are two separate sources of contamination at the MSC/IM site. An underground solvent tank formerly on the IM site is the source of a solvent discharge to groundwater. A chemical storage area on the MSC site is believed to be the source area for solvents on the MSC site. Groundwater flows from the MSC site across the IM site. The two contaminant plumes have thus become commingled. The main contaminants are TCE, TCA, DCE, and freon. IM and MSC are both sources of freon. MSC is the main source of TCE, TCA, and DCE.

Maximum Contamination. The historical maximum VOC concentrations in the groundwater were TCE at up to 1400 ug/l, and freon at up to 4000 ug/l. DCE and TCA were present at much lower levels. As of the first quarter 1996, maximum TCE levels were around 100 ug/l, 1,1-DCE and cis-1,2-DCE are around 5 ug/l and 8 ug/l respectively, slightly above their cleanup standards, and freon is below the groundwater cleanup standard of 1,200 ug/l with a maximum concentration around 60 ug/l. The other compounds are below cleanup standards.

II. DISCUSSION OF REMEDIAL OBJECTIVES

Remedial Actions:

Groundwater. In 1982, groundwater was sampled adjacent to an underground solvent storage tank at the IM site as part of a Regional Board leak detection program. Solvents including Freon-113, TCE, and TCA were detected in the groundwater. The resulting groundwater investigation found that a source of solvent contamination in groundwater was present on the upgradient MSC site. In 1988 it was concluded that the MSC site was a primary source of TCE, TCA, and Freon-113 and that the IM site was a secondary source of Freon-113 and TCA. The two plumes of contaminated groundwater had become commingled. MSC declared bankruptcy and was dissolved as a corporation. The property owner, Kim Camp III, a property management and development partnership, has been the primary responsible party for the cleanup. Kim Camp III is referred to hereafter as the discharger. Groundwater extraction and treatment started at the IM site in 1986. In 1991 groundwater extraction and treatment began at the MSC site. Currently, there are five extraction wells on the combined MSC/IM site. Four on the MSC site and one on the IM site. When fully operational the extraction system pumps about nine gallons per minute (about 12,960 gallons per day).

In January 1991, the dischargers submitted a Remedial Investigation/Feasibility Study for the combined site. The

feasibilty study evaluated different remedial action alternatives. A complete description of the alternatives is contained in the report. The Regional Board adopted Site Cleanup Requirements (SCRs), Order No. 91-119, for the site in July 1991. The alternative that was selected in the SCRs as the final cleanup plan consisted of: 1) a deed restriction prohibiting the use of shallow groundwater, 2) groundwater monitoring, 3) groundwater pumping from the A zone, 4) treatment of extracted groundwater with activated carbon and discharge of the treated groundwater to the storm drain under an NPDES permit.

The SCRs set cleanup standards at California proposed or adopted Maximum Contaminant Levels (MCLs), EPA MCLs, California Action Levels, or levels based on a risk assessment. These cleanup levels are:

Chemical	Cleanup Standard (ug/l)
Chloroform	100
1,1-dichloroethane (1,1-DCA)	5
cis-1,2-dichloroethene (cis-1,2-DCE)	6
tran-1,2-dichloroethene (trans-1,2-DCE)	10
1,1-dichloroethene (1,1-DCE)	4
Freon 113	1,200
methylene chloride	40
tetrachloroethene	5
toluene	40
1,1,1-trichloroethane (1,1,1-TCA)	200
1,1,2-trichloroethane (1,1,2-TCA)	32
trichloroethene (TCE)	5

Currently, only TCE, 1,1-DCE, and cis-1,2-DCE exceed the cleanup standards. 1,1-DCE and cis-1,2-DCE are slightly above their cleanup cleanup levels. TCE concentrations in the area of highest contamination are about 100 ug/l.

Soils. Soil sampling was performed at the MSC site in the presumed source area. It was concluded that the original source of VOCs had leached or volatilized out of the source area and that

only low levels of VOCs remained in soil. At the IM site, the underground waste solvent storage tank was removed and 35 cubic yards of soil excavated.

III. ARARs REVIEW

The discharger did not conduct a review of the chemical specific Applicable Relevant and Appropriate Requirements (ARARs) for the compounds for which final cleanup standards were adopted. These ARARs are drinking water standards for 10 of the 12 compounds. Board staff are aware of only one ARAR change since the SCRs were adopted. The following summarizes this change:

Toluene:	From 100 ug/l to 150 ug/l CA MCL. EPA proposed MCL of 40 ug/l to adopted MCL of 720 ug/l.

Currently the cleanup is being driven by TCE, DCE and DCA, (primarily TCE), for which ARARs remain the same. Hence, the change in the ARAR for toluene should not effect the cleanup.

IV. EFFECTIVENESS EVALUATION

Discharger's Evaluation. The 5-year status report is the discharger's evaluation of the selected final cleanup remedy and cleanup costs. This report also contains an evaluation by the discharger, if drinking water standards have not been achieved, addressing whether it is technically feasible to achieve drinking water quality on-site.

Effectiveness of Site Remediation. Groundwater contamination has been fully defined. There is currently believed to be no source contributing additional VOC mass to the groundwater. Since the groundwater extraction system for the combined MSC/IM system came on line in January 1991, approximately 15.6 million gallons of groundwater, have been extracted and 12 1/2 pounds of TCE have been removed. TCE concentrations in groundwater have been reduced from a high of up to 1,400 ug/l to about 100 ug/l. The concentrations of 1,1-DCE and cis 1,2-DCE have been reduced from highs of 28 ug/l and 65 ug/l, to about 5 ug/l and 8 ug/l respectively. The other chemicals are below cleanup standards. TCE, DCE, DCA, and Freon were the main contaminants. The other chemicals for which there are cleanup requirements were present in minor amounts or in the case of chloroform may have been detected due to laboratory contamination. The amount of VOCs removed per volume of groundwater extracted has been steadily declining. The mass removal rate of TCE by the extraction and treatment system however, has remained relatively constant. This has been achieved by increasing the amount of water being extracted.

In late 1994 and early 1995, frequent equipment failures were

resulting in significant downtime of the extraction system. The discharger requested that they be allowed to shut down the extraction system to see what effect this would have on the pollutant plume. The discharger claimed that the concentrations of VOCs in groundwater had reached asymptotic levels and that further groundwater extraction would not result in any significant further reductions in VOC concentrations. The discharger also claimed that keeping the system running would involve capital expenditures of up to $30,000 for little additional benefit. Regional Board staff approved leaving the extraction system shut down in April 1995. The extraction system has remained shut down since then.

The cleanup plan has worked in that groundwater extraction has reduced the VOC concentrations in groundwater at the site and has prevented further migration of the plume. However, it is possible that due to the limitations of groundwater extraction as a means of removing VOCs from groundwater, cleanup standards may not be achieved.

Proposal to establish a Non-Attainment Area (NAA) The discharger claims that VOC concentrations have reached asymptotic levels and has petitioned for a NAA designation for the site. A petition containing a proposal for the NAA designation, was included in the fourth quarter 1994 monitoring report for the site, which was submitted in January 1995. The discharger has also included the NAA request as part of the five-year status report.

If a NAA designation is approved by the Board, the extraction system will remain off and a modified monitoring program implemented. A contingency plan will be activated if a concentration at or exceeding an established trigger concentration is detected in any of the monitored wells. If the trigger concentration is confirmed, groundwater extraction and treatment from one or more of the extraction wells will be initiated, and will continue until all concentrations are below trigger concentrations for three consecutive quarters. The contingency plan is meant to ensure that groundwater containing VOCs in excess of cleanup standards does not leave the site. An adequate contingency plan for the site has yet not been submitted. The Regional Board is currently awaiting U.S. EPA’s decision on whether to allow an NAA at the Intel Santa Clara III Superfund site before requiring development of a contingency plan for this site or otherwise proceeding with an NAA designation.

The selected remedy consisting of the extraction and treatment of groundwater has partially worked in that VOC concentrations have declined significantly and the plume has been contained. The goal of the remedy was to restore the groundwater to drinking water quality. Information from this site and other sites in the South Bay and around the country indicates that while groundwater extraction works to reduce VOC concentrations and contain plumes, it may not be able to restore VOC contaminated aquifers to

background or drinking water quality. Since 1991, 15.6 million gallons of groundwater have been extracted and treated at this site at a cost of $404,000 to remove 12.5 pounds of TCE. The discharger claims that VOC concentrations in wells onsite have reached asymptotic levels and that further groundwater extraction will not significantly reduce VOC concentrations. Regional Board staff have not yet made a determination of whether asymptotic levels have been reached. We concur that levels are close to asymptotic. Board Staff are awaiting U.S. EPA's decision on whether to allow an NAA at the Intel Santa Clara III site based on asymptotic levels of VOCs before proceeding further with such a determination at the MSC/IM site.

The Regional Board concluded in 1992 that it may not be feasible in all cases to restore VOC polluted groundwater to background or even drinking water quality. In view of this, the Regional Board made it possible for dischargers to propose the application of certain Board-approved criteria to sites being remediated and to request that the sites be categorized as Non-Attainment Areas (NAAs). Such areas are limited areas of groundwater pollution where pollutant concentrations may exceed water quality objectives without active remediation being required. The MSC/IM Site, where a Board approved cleanup program has not yet resulted in compliance with water quality objectives, is classified as a "Category II" site for NAA consideration. The Board approved criteria for designation of a site as an NAA are:

a. *An appropriate cleanup program has been fully implemented and reliably operated for an adequate period of time.*

b. *Groundwater pollutant concentrations have reached asymptotic levels using appropriate technology.*

c. *Best economically available technologies are not technically or economically feasible to achieve further significant reduction in pollutant concentrations.*

d. *An acceptable plan is submitted and implemented for containing and managing the remaining human health, water quality and environmental risks posed by residual soil and groundwater pollution. This includes deed restrictions, a contingency plan, and a monitoring program.*

Board Staff will await U.S. EPAs decision on whether to allow NAA designation for the Intel Santa Clara III Superfund site. If NAA status is approved for the Santa Clara III site, Board Staff may propose the MSC/IM site for NAA status if deemed appropriate.

Cost Evaluation. The discharges originally projected in the feasibility study that capital costs for the groundwater extraction and treatment system would be $119,000 and projected total annual operation and maintenance costs were $50,000 to $220,000.

Operation and maintenance costs for the projected 10 to 12 year period of operation, based on a present worth analysis, were projected to be approximately $629,900 to $1,247,000. Actual reported costs incurred through 1995 for extraction and treatment of groundwater total approximately $404,535. This includes capital costs for the extraction and treatment system, annual operation and maintenance costs, and costs for quarterly groundwater and NPDES monitoring. It does not include costs for the remedial investigation and feasibility study or for agency reimbursement.

The discharger projects that if the extraction and treatment system remains shut down, annual costs at the site will be approximately $30,000 annually. If the system is operating, projected costs are $61,000 per year.

V. SUMMARY OF SITE VISIT

The most recent site visit occurred in June 1996, when a compliance inspection was conducted by a member of the Board's Staff. The groundwater extraction and treatment system was not operating. The system had been shut down since the first quarter of the year as had been agreed to by Board Staff. The inspection did not reveal any violations, and the site was found to be in full compliance.

VI. AREAS OF NONCOMPLIANCE

The discharger has fully implemented the approved remedial action plan, consistent with the remedial objectives, and is in compliance with all current Board Orders.

VII. RECOMMENDATIONS

In general Board Staff agrees with the discharger's characterization of the site in the 5-year Review. Staff has not yet made a finding regarding the discharger's request for an NAA. Staff recommends continuing to allow the discharger to leave the groundwater extraction and treatment system shut down to determine what effect this has on the contaminant plume. We recommend that the NAA proposal be considered separately from the 5-year review and that the Board accept the 5-year review without accepting the NAA proposal as part of it (i.e., excluding the NAA proposal).

VIII. STATEMENT OF PROTECTIVENESS

We certify that the remedy selected for this site remains protective of human health and the environment.

IX. NEXT FIVE-YEAR REVIEW

The next 5-year review will be conducted by July 2001.